

speckle-pattern noise reduction subsystem carries out a temporal phase modulation technique during the transmission of the PLIB towards the target, so that the object is illuminated with a temporally coherent-reduced planar laser illumination beam (PLIB) and numerous substantially different time-varying speckle-noise patterns are produced at the image detection array over the photo-integration time period thereof. The numerous substantially different time-varying speckle-noise patterns are detected at the image detection array over the photo-integration time period, and the detected speckle-noise patterns are temporally averaged at said image detection array during the photo-integration time period thereof. As a result of such temporal averaging, the RMS power of observable speckle-noise patterns is reduced at the image detection array. By virtue of the present invention, it is now possible to enjoy the benefits of using laser-based illumination during high-speed imaging operations, without the adverse effects associated with speckle-pattern noise.--

AMENDMENT OF THE CLAIMS TO INVENTION:

Please cancel Claims 1-669 without prejudice or disclaimer and add new Claims 670-681 as follows:

--670. A method of reducing speckle-pattern noise at the image detection array of a planar laser illumination and imaging (PLLIM) based camera system, said method comprising the steps of:

- (a) producing a planar laser illumination laser beam (PLIB) within a planar laser illumination and imaging (PLIIM) based system including an image detection array having image forming optics with a field of view (FOV) arranged in a coplanar relationship with said PLIB;
- (b) reducing the temporal-coherence of said planar laser illumination beam (PLIB) before said PLIB illuminates a target object, by applying a temporal phase modulation technique during the transmission of said PLIB towards the target, so that the object is illuminated with a temporally coherent-reduced planar laser illumination beam (PLIB) and numerous substantially different time-varying speckle-noise patterns are produced at said image detection array over the photo-integration time period thereof;

(c) detecting said numerous substantially different time-varying speckle-noise patterns over said photo-integration time period; and